SiliconGraphics
Computer Systems

O2™ Desktop Workstation

The O2 Workstation: Affordable Silicon Graphics Performance

The O2 desktop workstation is the affordable, innovative system that combines Silicon Graphics performance in a tightly integrated feature-rich user environment. O2 maximizes the productivity and innovation of creative and engineering teams with a new Web-integrated user interface combined with exceptional compute, graphics, imaging, I/O, and video compression capabilities.

New Thinking Demands a New Architecture

The O2 workstation is based on an innovative Unified Memory Architecture (UMA). Each system resource (CPU, graphics, video, imaging, compression, I/O) has equal access to the 2.1GB per second unified main memory subsystem. The compute power of O2 is based on the MIPS® R5000® and R10000™ processors, providing outstanding application performance.

Interactive Graphics and Imaging Performance

The O2 workstation's standard 32-bit double buffered graphics, native OpenGL® graphics subsystem, and hardware support for texture mapping and z-buffering give users industry-leading 3D performance and quality. O2 has a dedicated image processing engine that accelerates operations such as convolutions. The texture mapping hardware also allows real-time pan, zoom, and rotate of large, high-resolution images.

Unmatched Video Processing

Standard video processing and compression hardware in O2 enables every engineer to be a video editor while providing the features and quality that video professionals demand. Users can record screen graphics and save it in real time as a JPEG compressed movie file. Video can be stored uncompressed to a disk array, JPEG compressed to the system disk, or used as texture map to create exceptional 3D digital video effects.

Web-Integrated Desktop Environment

The O2 workstation is built network-ready, with Web browsing and TCP/IP network protocols completely integrated into the desktop user interface and operating system. The file management system allows for the viewing of files, folders, or the hierarchy of a Web site while browsing it. The Silicon Graphics personal Web publisher is a standard feature, allowing users to share information over company intranets with an easy-to-use drag-and-drop interface. Each machine has simple but powerful personal system administration and disk management tools that leverage the Web's look-and-feel to help users intuitively visualize and complete tasks such as printer installation. NFS™ 3.0, available as an option, provides the highest throughput NFS file serving in the industry.

High-Bandwidth I/O

The O2 I/O engine maximizes performance by removing bandwidth bottlenecks, which can starve even the fastest system components. O2 delivers peak performance on 10Base-T/100Base-TX Ethernet™ networks, a dual Ultra Fast/Wide SCSI implementation, 64-bit PCI expansion bus, and other I/O options.

Datasheet

O2 Desktop Workstation

Technical Specifications

BASE SYSTEM HARDWARE FEATURES AND OPTIONS

Processor

R10000 @ 195MHz, 1MB secondary cache

R5000 @ 200MHz, 1MB secondary cache

R5000 @ 180MHz, 512KB secondary cache

Memory

Synchronous DRAM, 100MHz, 4 banks, 288-bit wide

Capacity: 32MB–256MB with 16Mb SDRAM; 128MB–1GB with 64Mb SDRAM (available late 1997)

Mass Storage

2 channel x Ultra Fast/Wide SCSI single-ended, 1 internal bus, 1 external bus (40MB/sec peak each)

2 channel x 1" x 3.5" internal drive bays (only 1 available on R10000 processor models)

Internal 12X CD-ROM

Hard drives: 2GB (5,400 RPM) and 4GB (7,200 RPM)

Networking Hardware

10Base-T/100Base-TX Ethernet standard (RJ-45)

PCI networking options: FDDI (dual-attach fiber, single-attach fiber, or unshielded twisted pair); 10Base-T/100Base-TX Ethernet; ISDN basic rate interface (S/T connector); Synchronous serial 2 x T1/E1; ATM**; Serial HIPPI**; Fibre Channel**

I/O

One half-length, 64-bit PCI slot (10W)

Optional digital display adapter card for Silicon Graphics® Presenter 1280

2 channel x Ultra Fast/Wide SCSI I/O available via PCI option

Input Devices

PC (PS/2™) compatible keyboard and mouse

Audio

Analog stereo I/O

Monaural speaker and microphone

Digital audio I/O option available via PCI

Video

Composite and S-Video I/O via O2 Video Option (includes O2 digital color camera)

CCIR601 digital video I/O via O2 Digital Video Option

Monitor

20" (19" viewable) Trinitron® 1280x1024

17" (16" viewable) Trinitron 1280x1024

Connectors and Controls

Front	Volume control (up/down)
	Speaker
	Status LED
	Reset switch
	Power on
Rear	2x serial 460kbps (DB-9)
	Monitor (HD15) PC style
	Ultra Fast/Wide SCSI (H-den 68)
	10Base-T/100Base-TX Ethernet (RJ45)
	1284 parallel (C miniature)
	Mouse/keyboard (2 x MDIN6)

Audio/Video

Side	R/L stereo audio line I/O (RCA) [1,2]
	R/L stereo audio line I/O (3.5mm) [3]
	Stereo headphone out (3.5mm) [all]
	Microphone in (3.5mm) [all]
	S-Video I/O (MDIN) [2]
	Composite video I/O (RCA) [2]
	Genlock I/O, GPI I/O (DB9) [3]
Rear	Digital video camera I/O (HD68) [2]
	R/L stereo audio line (3.5mm) [2]
	CCIR601 digital video I/O (4-BNC) [3]

Package

9" W x 12" H x 10.5" D

22 lbs

175-watt power supply

GRAPHICS

Resolution

1280x1024 @ 75Hz
1024x768, 800x600, 640x480 also supported

Frame Buffer Formats

32 + 32-bit FB (32 + 32 double buffered)

32-bit FB (16 + 16 double buffered)

16-bit FB (8 + 8 double buffered)

8-bit overlay

Graphics Features

Native OpenGL graphics subsystem

Hardware z-buffer

Triangle rasterization in hardware

Texture mapping in hardware

Hardware image mapping support

Hardware stencil planes

Hardware anti-aliasing

Source plus destination alpha in hardware

Fast Xline performance

VIDEO COMPRESSION

Hardware – JPEG @ 30/25 fps, NTSC/PAL

Software
- QuickTime®
- Cinepak®
- MPEG-1
- Indeo®
- H.261

STANDARD SOFTWARE FEATURES

Operating System

IRIX™ 6.3 with XFS™

Networking

TCP/IP, Novell NetWare™ support, Xinet AppleTalk® support, Windows® networking, ONC with NFS 3.0 (optional)

Run-Time Libraries

OpenGL and OpenGL image extensions

ImageVision Library®

Digital media libraries

REMOVABLE MEDIA OPTIONS

Floppy (SCSI port), 4.0GB DAT, SyQuest®**, 10GB or 15GB digital linear tape, 1.3GB optical disk**, ZIP**, JAZ**

INPUT DEVICE OPTIONS

Optical mouse**, Magellan**, Spaceball**, dials and buttons, tablets**

MISCELLANEOUS OPTIONS**

Macintosh® MIDI port converter

RS-422 port converter

REGULATORY COMPLIANCE

FCC/CISPR 22 class A

IEC 950 CSA/TUV

EV EMC compliant

SUPPORT

Warranty: 1 year advanced parts exchange

Performance	R5000/ 180MHz SC	R5000/200MHz SC	R10000/195MHz SC
Viewperf 5.0 (frames/sec)			
CDRS Viewset Composite	16.26	18.51	20.42
Data Explorer Viewset Composite	3.15	3.47	3.48
Design Review Viewset Composite	2.45	2.67	2.70
Advanced Visualizer	5.49	6.20	7.42
Lightscape	0.49	0.53	0.55
Xlines	2.2M	2.4M	2.7M
Triangles (Lit, Gouraud, Z, 50 pixel)	421 K/sec	473 K/sec	507 K/sec
Bilinear texture fill rate	42 MP/sec	42 MP/sec	44 MP/sec
Trilinear texture fill rate	32 MP/sec	32 MP/sec	33 MP/sec
DMA pixel fill rate 16-bit	65 MP/sec	65 MP/sec	64 MP/sec
SPEC int 95	4.8	5.4	9.3
SPEC fp	5.4	5.7	8.9

*not present on all models
**not sold by Silicon Graphics

[1] O2 standard audio
[2] O2 Video Option
[3] O2 Digital Video Option

SiliconGraphics
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Corporate Office
2011 N. Shoreline Boulevard
Mountain View, CA 94043
(650) 960-1980
URL: http://www.sgi.com

U.S. 1(800) 800-7441
Europe (44) 118-925.75.00
Asia Pacific (81) 3-54.88.18.11
Latin America 1 (650) 933.46.37

Canada 1 (905) 625.47.47
Australia/New Zealand (61) 2-9879.95.00
SAARC/India (91) 11.621.13.55
Sub-Saharan Africa (27) 11-884.41.47

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